REMARKS

These remarks are in response to the Final Office Action dated April 10, 2007. Claim 1 has been canceled without prejudice to Applicants right to pursue the subject matter of claim 1 in a continuing or divisional application. Applicants have amended claims 2, 3, 11, 12, 16, and 24. Support for the amendment to claim 24 can be found throughout the specification and claims as originally filed. Specifically, support for the recitation of "simultaneously" measuring change in electrophoretic mobility and fluorescence polarization of a fluorescent probe can be found in the published application (Publication No. 2005003737) at paragraph [0156] which recites, in part, the "electrophoretic mobility and fluorescence polarization of the fluorescent probe upon complex formation with the binding partner were measured simultaneously..."

No new matter is believed to have been introduced. Claims 2, 3, 4, 11, 12, 16 and 24 are pending and at issue. Applicants request reconsideration of the pending claims.

I. INFORMAL MATTERS

Applicants wish to thank Examiner Wessendorf for her helpful comments during discussions with Applicants representative.

II. REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

Written Description

Claims 1-4, 11, 12, 16 and 24 stand rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the Applicants, at the time the application was filed, had possession of the claimed invention. This rejection is moot wit regard to canceled claim 1. Applicants respectfully traverse this rejection as it may apply to the amended claims.

The claimed method encompasses the use of fluorescence polarization, in combination with electrophoresis, to identify complexes formed when a labeled probe specifically binds to a binding factor. Claim 24 has been amended to recite:

A method for determining the binding affinity and/or stoichiometry of a binding complex between a binding factor and a probe, comprising:

(a) contacting a sample comprising a binding factor with a probe comprising a fluorophore, wherein the probe specifically binds to the binding factor forming a binding complex;

(b) separating the binding complex from unbound probe by electrokinetic chromatography and measuring the electrophoretic mobility of the complex to determine the change in electrophoretic mobility of the complex in comparison to unbound probe;

(c) comparing the laser-induced fluorescence polarization of the binding complex with the laser-induced fluorescence polarization of the unbound probe, wherein the binding complex exhibits increased polarization in comparison to unbound probe thereby allowing detection of the binding complex; and

(d) correlating the result obtained in (b) with the result obtained in (c) and determining binding affinity and/or stoichiometry between the probe and the binding factor.

The subject matter of the claimed method relates to correlating a change in electrophoretic mobility of a complex with the fluorescence polarization of the complex. This information is used to determine the binding affinity of a probe for a binding factor. This is specifically stated in the specification at paragraph [0156] which recites in part:

> "In the first set of examples, laser induced fluorescence polarization (LIFP) detector was used in conjunction with capillary electrophoresis to demonstrate the utility of CE/LIFP. Changes in the electrophoretic mobility and fluorescence polarization of the fluorescent probe upon complex formation with the binding partner were measured simultaneously, thereby providing complementary information on the binding interaction. This information could not be obtained with either CE or LIFP used alone."

Also provided in the specification are specific examples which relate to calculating binding affinity using the information derived from the claimed method. Paragraph [0184] provides such an example and is reproduced below for the convenience of the Examiner:

> [0184] In this example, a fluorescein labeled 11-mer (F-11-mer) was evaluated as a probe for examining its binding with the SSB protein. Electropherograms of F-11-mer in the absence and presence of the SSB protein in the running buffer were run and the vertical (I_v) and horizontal (I_h) components of fluorescence were measured simultaneously for each. Fluorescein labeled dUTP (F-dUTP) was used as a reference compound to correct for possible fluctuations in

> electroosmotic flow and unequal detection sensitivity between the two detection channels of the instrument. In the absence of the binding protein, the fluorescent probe has an electrophoretic mobility of m = 3.99 x 10^{-4} cm^2 V^{-1} s^{-1} and a fluorescence anisotropy of A = 0.05. In the presence of 0.7 mM of the SSB protein in the running buffer, the electrophoretic mobility of the oligonucleotide probe is reduced to 1.93 x 10^{-4} cm^2 V^{-1} s^{-1} whereas the anisotropy is increased to 0.25. The decrease in electrophoretic mobility and increase in anisotropy are due to the binding of the F-11-mer with the SSB protein. In contrast, the mobility and anisotropy of F-dUTP are essentially unchanged, consistent with the fact that the SSB protein has very low binding affinity for the mononucleotide.

Paragraphs [0185] through [0188] provide further support for determining the binding affinity of a probe for a target molecule. The present specification clearly provides an adequate written description of a method for determining the affinity of one molecule for another and the skilled artisan will recognize that the Applicants were in possession of the invention defined by the claims.

In view of the above discussion and in light of the amendments to the claims, Applicants request that all rejections under 35 U.S.C. §112, first paragraph, be withdrawn.

III. REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Claims 1-4, 11-12, 16 and 24 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. This rejection is moot with regard to canceled claim 1. Applicants traverse this rejection as it may apply to the amended claims.

Pending claim 24 has been amended to delete any reference to steps (i)-(iii). In view of the claim amendments, Applicants request that all rejections under 35 U.S.C. §112, second paragraph, be withdrawn.

IV. REJECTION UNDER 35 U.S.C. §103

Claims 1-4, 11-12, 16 and 24 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Laing et al., in view of Le et al. This rejection is moot with regard to canceled claim 1. Claims 2-4, 11, 12 and 16 have been

amended to depend from claim 24. Applicants traverse this rejection as it may apply to the amended claims.

The method of Laing is directed to identifying conformational changes in RNA. The method allegedly detects the conformational change in a target RNA sequence when the hybridization of a fluorescently labeled probe is inhibited or modified through the interactions of a ligand with the target RNA sequence. The method of Le is directed to detecting and/or quantitating at least one modification to a nucleic acid sequence of interest. Le cites the use of fluorescently labeled polypeptides as one exemplary method of identifying a modification to a nucleic acid sequence.

Neither Laing or Le suggest a method of determining the binding affinity and/or stoichiometry between a binding factor and a probe by combining information obtained from electrokinetic chromatography and laser-induced fluorescence polarization. The subject matter of amended claim 24 encompasses correlating the information obtained from these two techniques so that the binding affinity and/or stoichiometry between a probe and a binding factor can be determined. Neither Laing or Le, separately or in combination, teach the method set forth in amended claim 24.

In view of the amendments to the claims, and in light of the above discussion, it is submitted that the skilled person would clearly not arrive at the claimed methods by combining the teaching of Liang with the disclosure of Le. Applicants submit that the claims are patentably distinguishable over the cited references and respectfully request withdrawal of the rejection under 35 U.S.C. §103.

V. NON-STATUTORY OBVIOUSNESS-TYPE DOUBLE PATENTING

Claims 1, 2, 11, and 16 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1 and 9 of U.S. Patent No. 6,132,968 ('968 Patent) in view of U.S. Patent No. 6,331,392 ('392 Patent). This provisional rejection is moot with regard to canceled claim 1. In addition, this provisional rejection is moot with regard to claims 2, 11, and 16, as they now depend from claim 24. Accordingly, Applicants contend that the instant claims are patentably distinguishable over the '968 patent, in view of the '392 patent, and respectfully request withdrawal of the provisional obviousness-type double patenting rejection.

In summary, for the reasons set forth herein, Applicants maintain that claims 2-4, 11, 12, 16 and 24 clearly and patentably define the invention. Applicants request that the Examiner reconsider and withdraw the various grounds for rejection set forth in the Office Action.

If the Examiner would like to discuss any of the issues raised in the Office Action, Applicants' representative can be reached at (858) 509-7318. Should any additional fees be required, the Commissioner is authorized to charge deficiencies or credit any overpayment to Deposit Account No. 02-4800.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY, L.L.P.

Date: August 10, 2007

By: _____
Michael Reed, Ph.D.
Registration No. 45,647

1737 King St Ste 500
Alexandria VA US 22314
703-836-6620